

# RADARS<sup>®</sup>

S Y S T E M

<b>Title:</b>	Geographic Description of Opioid Exposures in Pregnant Women within the US
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<b>Meeting:</b>	North American Congress of Clinical Toxicology (NACCT) Annual Meeting
<b>Date:</b>	September 2013
<b>Location</b>	Atlanta, GA

## Abstract:

### **Background:**

The number of neonates born addicted to opioids nearly tripled between 2000 and 2009, jumping from 1.20 per 1,000 births to 3.39 per 1,000 births. Hospital costs to treat associated symptoms, also known as neonatal abstinence syndrome (NAS), have also increased from \$190 million to \$720 million during the same time frame. Organizations involved in the prevention of NAS struggle to find at-risk babies in utero due to significant under-reporting during maternal interviews regarding intrauterine drug exposure. The purpose of this study is to determine geographically where opioid intentional exposures (IEs) in pregnant women are being reported to Poison Centers (PCs) participating in the RADARS<sup>®</sup> System.

**Methods:** Exposure cases analyzed in this study were collected from the RADARS System PC Program from 1Q2011-4Q2012. Cases were recorded on a 3-digit ZIP code (3DZ) level and population was taken from the 2010 Census. Two different rates were calculated: intentional exposures in pregnant women per 100,000 total population and per 10,000 unique recipient of dispensed drug (URDD), which is a measure of retail availability. These rates were then grouped by quartiles. IEs were defined as suspected suicide, misuse, abuse, withdrawal, or intentional unknown. Opioids included were buprenorphine, fentanyl, hydrocodone, hydromorphone, methadone, morphine, oxycodone, oxymorphone, tapentadol, and tramadol.

**Results:** Of the 412 exposure cases in pregnant women captured by participating PCs during this time frame, 313 (76%) were IEs. The top ten states with the most IEs during this time frame were California (35), Texas (27), Illinois (15), Louisiana (14), Michigan (14), Florida (14), Indiana (13), Georgia (13), Maryland (12), and Arizona (11). The top five intentional population rates by 3DZ were 084 (NJ, 0.652), 679 (KS, 0.402), 143 (NY, 0.378), 052 (VT, 0.374), and 593 (MT, 0.360). The top five intentional URDD rates by 3DZ were 513 (IA, 0.636), 084 (NJ, 0.445), 583 (ND, 0.372), 593 (MT, 0.304), and 052 (VT, 0.242). The majority of the top 25% intentional population rates are located in the central US, while the URDD rates are more dispersed. The top five opioids reporting an IE were hydrocodone (47.6%), oxycodone (22.0%), tramadol (13.7%), methadone (6.7%), and buprenorphine (5.4%).

**Conclusion:** While rates per total population are higher in the central US, the widespread reporting to PCs suggests that education and intervention efforts should be a national focus for all pregnant women, specifically those on hydrocodone, oxycodone, and tramadol as well as those on methadone and buprenorphine maintenance therapy. Each state should work with local organizations to develop or review procedures to prevent NAS.